REMARKS

These remarks are in response to the Office Action mailed December 31, 2002. Claims 1 to 86 are pending. Claims 1 to 80 stand withdrawn from consideration as drawn to an unelected species. Claims 81 to 86 are therefore under consideration.

Applicants respectfully request examination of the unelected species in the subject application with the elected species. In this regard, generic claim 81 is allowable and no art has been cited against any of the claims. Accordingly, Applicants respectfully request that the Examiner search all of the unelected species, for example, the recited peptides (claims 1 and 57), M phase checkpoint activators (claim 84) and DNA damaging treatments (claim 81) until relevant art, if any, is identified. [M.P.E.P. §809.04] Should there be no art identified, claims 81 to 86 directed to all unelected species should also be allowed. If the Examiner has searched all of the species then Applicants respectfully request that the Examiner confirm that the search has been completed. Applicants respectfully request reconsideration of the present application.

REJECTION UNDER 35 U.S.C. §112

The rejection of claims 81 to 86 under 35 U.S.C. §112, first paragraph as allegedly lacking enablement is respectfully traversed. The Patent Office indicates that allegedly the specification teaches "that a polypeptide that inhibits or abrogates the G2 checkpoint must be a substrate for, or be phosphorylated by Chk2 kinase." The Examiner acknowledges that "peptides of SEQ ID NOs: 1 and 1906-1921 were found to be phosphorylated by ChK2 kinase." However, because "peptides of SEQ ID NOs: 3-9, 14-21, 26-29, 110-370, 377-635, 657-897, and still many other peptides tested, were not substrates for the kinase," allegedly any one "peptide that is not a substrate for the kinase cannot be reasonably expected to act as the positive control to which the claims refer."

The specification adequately enables the invention of claims 81 to 86. The specification teaches that peptides that can inhibit or abrogate G2 checkpoint arrest may or may not be phosphorylated by Chk1 or ChK2 kinases. In this regard, the specification discloses phosphorylated peptides as well as non-phosphorylated peptides that can inhibit or abrogate G2

phosphorylation of Cdc25 thereby inhibiting or abrogating G2 checkpoint arrest (page 11, lines 16-18; and page 12, lines 5-7). Thus, a peptide can inhibit or abrogate G2 checkpoint arrest whether or not it is a substrate for phosphorylation.

For example, the specification discloses that TAT-S216, is efficiently phosphorylated by hChK1, and abrogates G2 arrest (page 40, line 28, to page 41, line 1, and lines 21-22; see also Figure 2A). The specification also discloses that TAT-S216A is not efficiently phosphorylated by hChK1, and abrogates G2 arrest (page 40, line 28, to page 41, line 1, and lines 21-22; see also Figure 2A). The specification further discloses that YPN (Table 2) abrogates G2 arrest (page 101, lines 18-19). YPN like TAT-S216A is not efficiently phosphorylated because Chk2 and Chk1 kinases are serine-threonine kinases that phosphorylate serine or threonine and YPN does not contain serine or threonine. Thus, the specification teaches peptides that can inhibit or abrogate G2 checkpoint arrest that may or may not be phosphorylated, and furthermore, exemplifies both phosphorylated and non- phosphorylated peptides that can inhibit or abrogate G2 checkpoint arrest.

The specification also teaches *in vitro* cell-cycle, histone H1 kinase and cytotoxicity assays for identifying peptides that can inhibit or abrogate G2 checkpoint arrest (page 39, lines 1-25; see, also, page 41, lines 7-20, page 41, line 28 to page 42, line 2 and lines 7-20). The specification further teaches an *in vivo* animal model for assaying peptides that can inhibit or abrogate G2 checkpoint arrest (page 101, line 22 to page 102, line 15). The specification discloses that such assays are applicable to G1 checkpoint deficient cells and teaches a general *in vitro* protocol for ascertaining whether G2 checkpoint arrest is inhibited or abrogated with a variety of DNA damaging treatments and peptides (page 100, lines 7-21). The specification moreover discloses optimizing peptides that can inhibit or abrogate G2 checkpoint arrest using three-dimensional modeling (page 44, lines 6-21). Thus, in view of the specification the skilled artisan would be apprised of both *in vitro* and *in vivo* assays for identifying peptides that can inhibit or abrogate G2 checkpoint arrest, as well as methods for optimizing for such peptides having the requisite activity.

In sum, in view of the guidance in the specification, which teaches that both

requisite activity are exemplified, those skilled in the art could use phosphorylated and non-phosphorylated peptides to inhibit or abrogate G2 checkpoint arrest. Further in view of the guidance in the specification which teaches peptide optimization as well as *in vitro* and *in vivo* methods for identifying peptides that can inhibit or abrogate G2 checkpoint arrest, those skilled in the art could readily identify additional peptides that can inhibit or abrogate G2 checkpoint arrest, whether the peptides are phosphorylated or are not phosphorylated. Thus, as claims 81 to 86 can be practiced without undue experimentation, the claims are adequately enabled. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §112, first paragraph be withdrawn.

CONCLUSION

In summary, for the reasons set forth herein, Applicants maintain that claims 81 to 86 clearly and patentably define the invention, respectfully request that the Examiner reconsider the various grounds set forth in the Office Action, and respectfully request the allowance of the claims which are now pending.

If the Examiner would like to discuss any of the issues raised in the Office Action, Applicant's representative can be reached at (858) 509-4065.

Please charge any additional fees, or make any credits, to Deposit Account No. 03-3975.

Respectfully submitted,

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